



**IEA Implementing Agreement on Demand-Side Management  
Technologies and Programmes**

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# **FINAL MANAGEMENT REPORT**

**Annex III  
Co-operative Procurement of Innovative Technologies  
for Demand-Side Management**

**May 2000**

International Energy Agency  
Implementing Agreement on Demand-Side Management Technologies  
and Programmes

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Co-operative Procurement of Innovative Technologies  
for Demand-Side Management

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Prepared by:

Dr. Hans Westling, Promandat AB, Annex III Operating Agent  
on behalf of the Swedish National Energy Administration

For further information please contact Dr. Hans Westling, Annex III Operating Agent,  
Promandat AB, P.O. Box 24205, SE-104 51 Stockholm, Sweden. Tel: +46-8-667 80 20.  
Fax: +46-8-660 54 82. E-mail: [hans.westling@promandat.se](mailto:hans.westling@promandat.se)  
Archives for Annex III is kept by the Swedish National Energy Administration (STEM),  
P.O. Box 310, SE-631 04 Eskilstuna, Sweden. Tel. +46-16-554 20 00. Fax +46-16-544 20 99.  
E-mail: [stem@stem.se](mailto:stem@stem.se)

## PREFACE

### *IEA Demand-Side Management Programme*

The International Energy Agency (IEA) was established in 1974 as an autonomous agency within the framework of the Economic Co-operation and Development (OECD) to carry out a comprehensive programme of energy co-operation among its 25 Member countries and the Commission of the European Communities.

An important part of the Agency's programme involves collaboration in the research, development and demonstration of new energy technologies to reduce excessive reliance on imported oil, increase long-term energy security and reduce greenhouse gas emissions. The IEA's R&D activities are headed by the Committee on Energy Research and Technology (CERT) and supported by a small Secretariat staff, headquartered in Paris. In addition, three Working Parties are charged with monitoring the various collaborative energy agreements, identifying new areas for co-operation and advising the CERT on policy matters.

Collaborative programmes in the various energy technology areas are conducted under Implementing Agreements, which are signed by contracting parties (government agencies or entities designated by them). There are currently 40 Implementing Agreements covering fossil fuel technologies, renewable energy technologies, efficient energy end-use technologies, nuclear fusion science and technology and energy technology information centres.

The Demand-Side Management Programme is a new collaboration. Since 1993, the 17 Member countries and the European Commission have been working to clarify and promote opportunities for DSM.

Australia	European Commission	Japan	Sweden
Austria	Finland	Korea	United Kingdom
Belgium	France	Netherlands	United States
Canada	Greece	Norway	
Denmark	Italy	Spain	

A total of 9 Tasks have been initiated, 5 of which has been completed. Each Task is managed by an Operating Agent from one of the participating countries. Overall control of the programme rests with an Executive Committee comprised of one representative from each contracting party to the Implementing Agreement. In addition, a number of special ad hoc activities--conferences and workshops--have been organised. The Tasks of the IEA Demand-Side Management Programme, both current and completed, are as follows:

#### Tasks:

Task I*	International Database on Demand-Side Management
Task II	Communications Technologies for Demand-Side Management
Task III*	Co-operative Procurement of Innovative Technologies for Demand-Side Management
Task IV*	Development of Improved Methods for Integrating Demand-Side Management
Task V*	Investigation of Techniques for Implementation of Demand-Side Management Technology in the Marketplace
Task VI*	DSM and Energy Efficiency in Changing Electricity Business Environments

- Task VII International Collaboration on Market Transformation  
Task VIII Demand Side Bidding in a Competitive Electricity Market  
Task IX The Role of Municipalities in a Liberalized System

\* completed Task

For additional information contact the DSM Executive Secretary, Anne Bengtson, Box 621, SE-182 16 Danderyd, Sweden, Telephone: +46/8/510 50830, Fax: +46/8/510 50831, E-mail: anne.bengtson@telia.com. Also, visit our web site at <<http://dsm.iea.org>>.

For information regarding Annex III contact the Annex III Operating Agent, Dr. Hans Westling, Promandat AB, Box 24205, SE-104 51 Stockholm, Sweden. Telephone: +46-8-667 80 20, Fax: +46-8-660 54 82, E-mail: hans.westling@promandat.se

## **ACKNOWLEDGEMENTS**

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I would like to pay particular thanks to the support, encouragement and dedicated hard work of all the Experts, Project Leaders and Specialists who have been involved in the Annex III work during the years: Mette Lundgren-Beck, Lene Nielsen, Eva Lembke, Jens Dandanell-Petersen, Preben Munter, Maria Rizzo, Rina Sapru, Paolo Bertoldi, Kwan-Hong Shin, Heikki Härkönen, Seppo Silvonen, Piet Heijnen, Ruud Trines, René Kemna, Hans-Paul Siderius, Enrique Brazis, Julio Peña, Carlos Gonzalez, Fernando Borbon, Hans Nilsson, Göran Bryntse, Egil Öfverholm, Anna Engleryd, Johanna Holmberg, Chris Baker, Paul Davidson, Peter Hill, Melanie Slade, Paul White, Marc La France, Jeffrey Harris, John Millhone, Bill Noel, Alison ten Cate, Rachel Schmeltz, Bernard Aebischer, Olof Molinder and Nils Borg. I wish to thank all the speakers and participants in the Paris 1994 Conference and the London 1999 Workshop on Lessons Learned, and in particular Anne Bengtson for her dedicated work in organising the Paris Conference and all persons at BRE and other UK organisations involved in the organising of the London Workshop. I also wish to thank the jury members of the Pilot Project Competitions and a number of persons and organisations mentioned in the report. My special thanks also go to Peter Lund and Marc Ledbetter for their reports and valuable contribution to the London 1999 Workshop. Finally I would like to thank Ann-Charlotte Hamvik for her excellent work with preparing the meetings and producing the documentation and reports.

Thanks to everyone who made it possible for me and the participants to work in this most inspiring project and who helped to make it a successful and memorable experience. Annex III has come up with very valuable findings which hopefully can be used in coming IEA and other international procurement and promotion projects.

Hans Westling  
Annex III Operating Agent

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## **Annex III "Co-operative Procurement"**

### **FINAL MANAGEMENT REPORT**

#### **1. EXECUTIVE SUMMARY**

Annex III "Co-operative Procurement" within the IEA DSM Implementing Agreement with 8 countries and the European Commission as participants has been going on during 1994 – 1999. A procedure for collaborative procurement actions for introduction of innovative, more energy-efficient products has been developed and tested in a number of pilot projects. A clothes drier with the energy use cut by half (the first "Class A" drier), electric motors with losses reduced by 20-40% and a "copier of the future" where the energy use has been reduced down to 25% are concrete results. After evaluation of proposals and prototypes, the suppliers have received the "IEA DSM Award of Excellence". Two workshops have been organised during the years, each with about 80 participants. Formulation of performance criteria and creation of mechanisms for recognition are two important elements in technology procurement efforts.

#### **2. ANNEX III AND THE IEA DSM AGREEMENT**

Annex III "Co-operative Procurement" is one of nine different Tasks within the International Energy Agency (IEA) Demand-Side Management (DSM) Agreement, which has seventeen IEA member countries and collaboration with international organisations like the European Commission and The World Bank.

Annex III has been in force from 1993 up to and including 1999. The Work Plan fulfilled is the "Technology Procurement Work Programme", dated April 23, 1993. The Programme was the result of discussions at a meeting in Stockholm, Sweden, March/April 1993, when a number of tasks for starting the new IEA Implementing Agreement "Demand-Side Management" were formulated. Annex III was originally planned to be in force during five years, but it was later agreed to continue Annex III for one additional year, 1999.

#### **3. OBJECTIVES**

The objectives of Annex III have been to establish a co-operative demand-pull procedure to bring more energy-efficient and environmentally-adapted demand-side management technologies to the marketplace, to rank innovative candidate technologies for competitive procurement activities, and to procure key DSM technology options that have not yet reached the marketplace in order to demonstrate and test the procedure developed.

The following countries and organisations have taken part in Annex III: Denmark, Danish Energy Agency; Finland, Motiva; Korea, KEMCO; Netherlands, NOVEM; Spain, ENHER, ADEA and ENDESA; Sweden, Swedish National Energy Administration -STEM - (earlier NUTEK); United Kingdom, DETR, BRE and ETSU; United States, U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA); and the Commission of the European Union, DG XVII, Energy. The Operating Agent for Annex III has been Hans Westling, Promandat AB, acting on behalf of the Swedish National Energy Administration.

The Annex III Subtasks have been:

- Development of a process.
- Technology screening.
- Draft specification and pilot procurement for one or more projects.
- Market contacts.
- Further procurement projects.
- Evaluation and workshop on "lessons learned".

#### **4. NEED FOR NEW MECHANISMS**

IEA and the European Commission have stated in their programmes that it is urgent to follow up the Rio, Kyoto and Buenos Aires Climate Agreements with concrete actions. The member countries of the organisations have agreed to contribute to reducing the risks of climate change, to remove barriers to market deployment of effective energy technologies, and to create a real market transformation.

Many mechanisms have already been used in programmes for *energy-reduction* through development and diffusion of more energy-efficient solutions, through influence of habits, and through development of new *energy sources*.

Use of mandatory regulations, as well as large rebate programmes, will encounter increasing difficulties and opposition, and also, in many cases, lack of funding. Recent trends are towards more individual choices and privatisation, which will reduce the possibilities for government interventions using traditional methods. This will mean that fragmentation, as a whole, will increase, which can lead to limitations to achieve the climate convention goals and the environmental objectives.

In many areas, users and buyers are, in general, very fragmented. Joint actions within countries, and actions involving several countries, can give stronger signals to suppliers for further development work of new solutions. The actions can influence suppliers to accelerate the introduction into the marketplace of solutions that already exist in the laboratories, and to further refine products already marketed. Manufacturers are very concerned in reducing the risks involved in the development of their new products. They strive to come close to their customers in order to really understand their needs, when they develop and refine their products. Procurement activities with innovative purposes can offer a good alternative for governments, buyers and users, and also for manufacturers, to bring about reliable solutions that are quicker accepted on the market. While keeping up the competitive situation, technology and co-operative procurement can open up for fruitful collaborative work between buyers, and also between buyers and suppliers.

## 5. DEFINITIONS

*Technology procurement* may be characterised as an entire acquisition process aimed at directly stimulating innovation. It is not exclusively associated with any particular form of contract, though it is closest to design/build contracting with functional requirements/performance criteria and functional procurement. Technology procurement has been defined as<sup>1</sup>:

“A process, through which a commodity, service or system is procured, and for which development of new technical solutions is essential in order to meet the requirements of the buyer. The technical development work, being part of the process, may concern application of advanced technology, but also minor stages of development as well as product modifications. The development work may concern the product, the system or the production process, for which it is developed.”

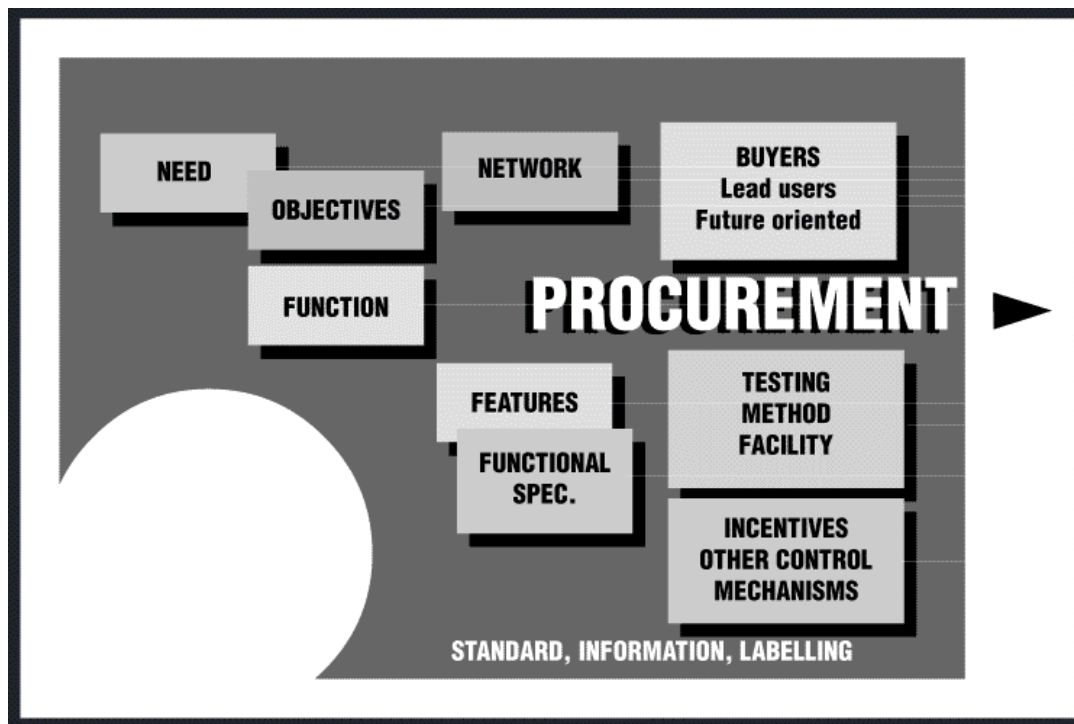


Figure 1. The technology procurement process – some important steps.<sup>2</sup>

*Co-operative procurement* (volume or bulk purchasing) includes both

- Technology procurement (of something not yet existing on the market) and
- Acquisition of existing products/systems in some organised ways (for instance among the 25% “best”, most energy-efficient, or best in some other aspects).

1 Industridepartementet Ds I 19823:4. *De små och medelstora företagen – Nuläge och utvecklingsbetingelser. En rapport upprättad inom struktursekretariatet.* /Small and medium-size companies – Present situation and development conditions. A report from the Secretariat for Structural Changes, Ministry of Industry./ Stockholm, 1982.

2 Westling, H. *Buyer Co-operation for Energy Efficient Appliances. Creative Buyer Groups with Goal and LCC Orientation – New Project Management Area.* Paper for the Project Management Institute Conference, Vancouver, October 1994.



The most influential buyer, or a number of *buyers* in combined efforts, formulate the requirements and evaluate the products. The market transformation is further influenced by support activities (rebates, information, labelling, awards, etc).

In some cases, the buyers represent only public organisations. In other cases, they may include private companies, individuals, or combinations of public and private organisations.

The importance of the *government in two different roles* has lately been pointed out in a report<sup>3</sup>: one as the traditional, large, *long-term buyer*, (for the defence establishment, infrastructure, etc.), and the other as an *intermediator, facilitating the building-up of networks and the creation of nodes, or joint organisations, for procurement* (similar to the Consortium for Energy Efficiency and the State Collaboratives in the United States, or the housing organisations HLM in France and HBV in Sweden).

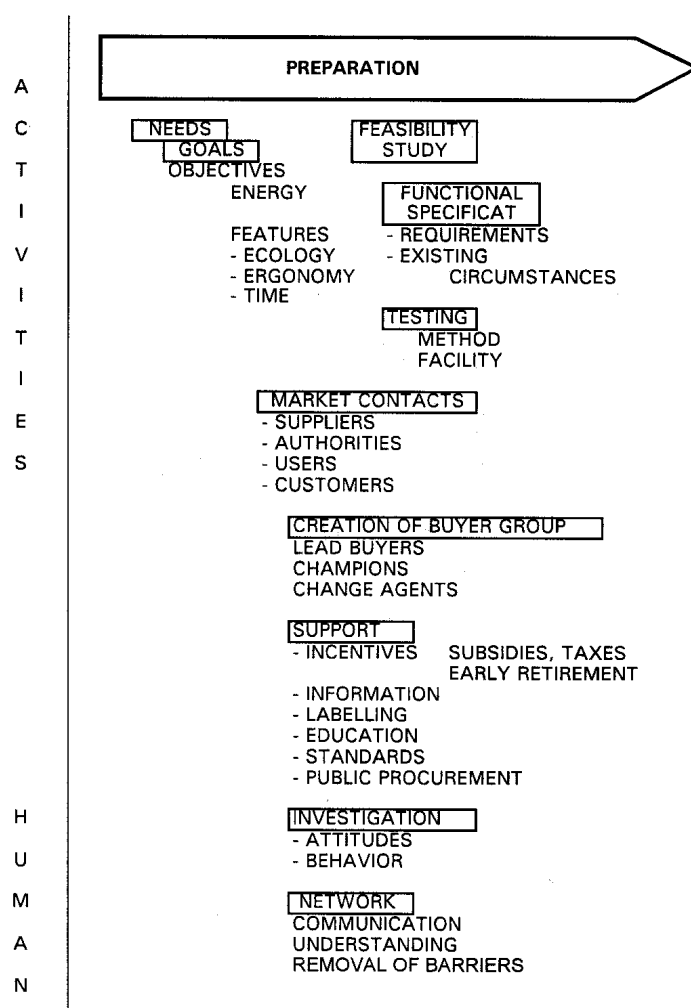


Figure 2. Co-operative and technology procurement. Preparatory activities.<sup>4</sup>

3 EC DG XII, Report in the EC DG XII TSER Programme by Lundvall, B.Å. & Borrás, S, *The Globalizing Learning Economy: Implications for Innovation Policy*. Luxembourg, 1998.

4 Westling, H. *Co-operative Procurement. Market Acceptance for Innovative Energy-Efficient Technologies*. IEA/NUTEK B1996:3. Stockholm

## 6. ACCOMPLISHMENTS AND UNIQUE CONTRIBUTIONS

The Operating Agent and the Experts in Annex III have developed a preliminary process, which has been documented in the report "Co-operative Procurement. Market Acceptance for Innovative Energy-Efficient Technologies". The report includes a broad background of achievements obtained using demand-side mechanisms similar to procurement in a number of countries, analysis of findings from cases where they have been practised and definition of a process (Figure 1) with many details (Figure 2). The level of engagement from different countries during different phases of a project has also been illustrated (Figure 3). It also points out the problems and barriers to handle during the projects. Important issues are the need to combine procurement with other support actions and to start work in pilot areas that are not too complicated (Figure 4). It is judged to be much easier to work with single components, or single systems, than with complicated systems, or whole building facilities, especially when different climatic conditions and cultural factors may have a large influence on the project.

X = Full active participation 0 = Supportive participation			
COUNTRY	A	B	C
NEEDS	X	X	X
OBJECTIVES			
Energy	X	X	0
BUYER GROUP	X	X	-
FEATURES	X	X	-
TESTING	0	X	-
SUPPORT			
Economy	X	-	X
Information	X	X	X
CO-ORDINATING BODY			
PROJECT MANAGEMENT	X	-	-

Figure 3. Level of engagement from different countries. Example.

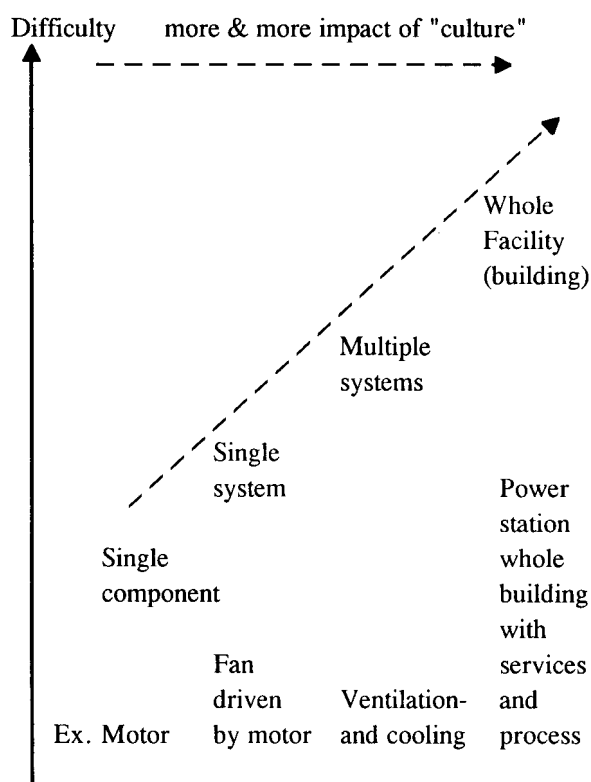


Figure 4. Product complexity "ladder".

A Workshop was held in November/December 1994 in Paris, France, with about 80 participants. Already then, three possible areas for pilot procurement were discussed during separate meetings. These areas were "Wet Appliances" (clothes washers and driers), "Lighting" and "Copiers". From a whole range of different possible areas, seven areas were later identified for joint actions. During the preparations, the process was more oriented towards a combination of procurement and promotion, and also towards introduction of alternative ways of recognising successful new products, not necessarily through guaranteed large-volume purchasing. An award - the "IEA DSM Award of Excellence" - was introduced. This award has been presented in three project areas: "Wet Appliances" for a drier with energy consumption reduced to 50%, which is the first "Class A" heat-pump drier on the European market; "High-Efficiency Motors" for two motors of different sizes where losses have been reduced by between 20 and 40%; and "Copier of the Future" for a copier which shows possibilities for energy reductions down to 25%, see [Table 1](#).

The drier is promoted by the participating countries through rebate campaigns with varying degrees of subsidy (The Netherlands, Denmark, Sweden and Spain) and through information activities (Finland). In Spain, electricity meters have been installed with the driers and measurement of the electricity consumption in real use will be made during some months. A questionnaire has been produced to get responses from the final clients about the functionality of the drier and their opinion of the new product. The results from the metering and the responses will be summarised in a report. After joint actions by all the participating countries, the supplier AEG/Electrolux decided to extend their introductory efforts, keeping the reduced price for the whole of 2000 and accelerating the efforts to industrialise production, thereby reducing the costs.

<b>Pilot Projects</b>	<b>Project Manager</b>	<b>Energy Reduction Goal</b>	<b>Results</b>	<b>Main Lessons *</b>
<i>Wet Appliances:</i> IEA DSM Drier Promotion Competition	The Netherlands	50%	Entry fulfilling all criteria	Market plans should be a condition for submitting an Award
<i>Lighting:</i> Replacement Incandescent Lamp – Future Bulb – Competition	United Kingdom	30%	One entry, not fulfilling all criteria. Subsequent one-off prototype produced which apparently meets criteria.	Competing with other important development projects among manufacturers, as CFLs
<i>Copiers:</i> Copier of the Future Competition	United States	By 70-75% down to 25%	Entry and prototype fulfilling all criteria	Receipt of the <u>Award</u> was the real challenge which was the driving force
<i>Industrial Motors:</i> IEA Hi-Motors Competition	Finland	20-40% reduction of losses	2 prototypes fulfilling all criteria	The Award was the real challenge. Most motors bought by systems suppliers, low initial purchase price important.
<i>LED Traffic Signals</i>	Sweden in collaboration with The Netherlands	Reduction of: energy costs 35-90%, maintenance costs 50-75%	In starting phase	Different interest in different countries concerning individual lamps or whole signal heads
* 60 different lessons identified by Project Managers in London Workshop Report				

*Table 1. Overview of Annex III Pilot Projects.*

The creation of buyer groups, the working out of performance specifications and the combination with different support activities have been stressed. It is especially important to include dominant, future-oriented buyers or users and, in many fragmented areas, to create a new network, where trust will be built up between the participants. Efforts should be made to include as many stakeholders as possible in the process.

The different pilot projects are summarised in Appendix 1. In addition to the five initial areas identified, the “Hi-Motors” and “LED Traffic Lights” areas have also been included.

During the years, a number of Experts Meetings have been held in Annex III. Comprehensive documentation has been produced before each meeting, and minutes with a lot of enclosed material have been drawn up after the meetings.

The Annex III Workshop, “Accelerate innovation and market transformation of energy-efficient products”, was held in London, United Kingdom, February 24-25, 1999. It had about 75 participants from 15 countries. The Project Managers, Experts and others involved had formulated 60 lessons learned from the pilot projects, which were compared to lessons learned from a number of U.S. projects and the findings of an External Evaluator ([Figure 5](#)).

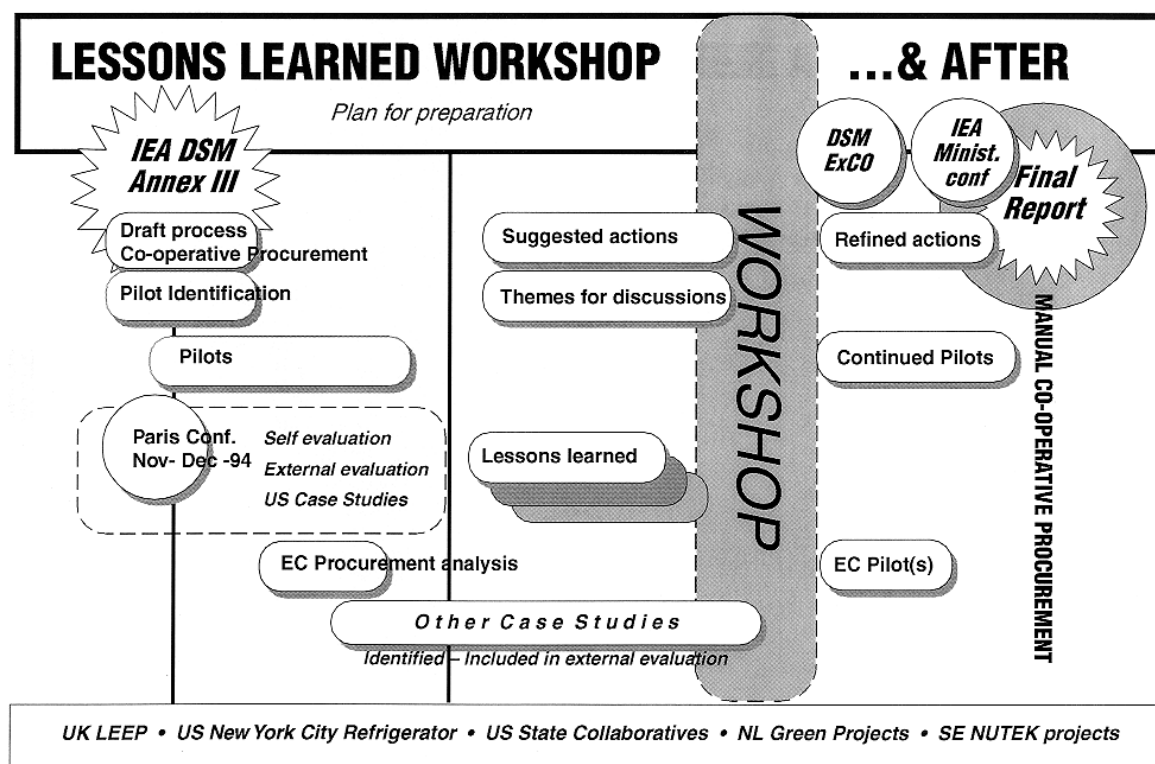


Figure 5. Lessons Learned Workshop ... & After.

For the “End of Term Report” of the whole DSM Agreement a few years ago, efforts were made to sum up how many persons had been involved in the Annex III work and how many person-days had been spent, see [Appendix 2](#). An assessment of the value of Annex III was also made.

Two of the Annex III pilot projects were mentioned as successful examples of IEA projects at a presentation in connection with the IEA 25<sup>th</sup> Anniversary in May 1999, and two of the pilot products – the drier and one of the motors – were also on show on that occasion.<sup>5</sup>

## 7. INVOLVEMENT OF INDUSTRY AND END-USERS

The market, including manufacturers and others, was informed about the planned activities through *announcements in official journals*, such as the “Official Journal of the European Communities”, on a number of occasions, see the timetable “Annex III – Procurement Projects” ([Appendix 3](#)). In addition, seminars were held and information given at important events, like

<sup>5</sup> Westling, H. *Success Stories from the IEA DSM Technology Procurement Program*. Paper for the International Conference on Energy Efficiency in Distribution and Usage of Electricity, Ankara, Turkey, April 2000.

international conferences and fairs, where many manufacturers would, at any rate, be present. Such events include for example the “Domotechnica” in Cologne, the Hanover Fair and meetings organised by DOE, EPA and the Consortium for Energy Efficiency (CEE) in the United States.

In many areas, it is important to know the usage pattern for the different products. Already existing investigations have, in some cases, been updated with additional findings, as for example in the copier area. Through contacts with leading *buyers and users*, many important problems have been identified, and the needs, not only for less use of energy, but also for other issues, like lower noise level and reduction of the impact of different environmental factors, have been pointed out. As concerns the drier project, representatives of the Consumers’ Testing Association in the United Kingdom and the Swedish Consumer Agency were also involved. Life-cycle costs, instead of only initial costs, have been stressed.

During the meetings mentioned above, *manufacturers* were invited to submit comments to early versions of the specifications. Many valuable remarks have been received and have influenced the refinement of the specifications in the areas.

For the preparation of the “LED Traffic Lights” projects, it has been important to get more information on how *human beings react* in different situations where these new traffic lights are used. This means that situations with full daylight, full sun, sunset, dawn and night have been studied. A number of users, like professional and common drivers, have been involved in the tests.

Industry and other private organisations have been involved as future buyers, especially in the “Copier of the Future” and the “Hi-Motors” project.

At the Workshops in Paris 1994 and London 1999<sup>6</sup>, presentations were made by industry representatives, from Electrolux and General Electric, among others. A number of representatives of office equipment manufacturers were present and took an active part in the Paris Workshop.

Efforts were also made to include chains of buyers working internationally in the work on the different national markets. There were some possibilities with hotel chains in the “Consumer Electronics” area. This project has not yet been fulfilled as a procurement project, but there is still an interest to decide about actions in this area. There have recently been two international workshops in this area, in January 1999 in Paris and in January 2000 in Brussels.

## 8. INFORMATION AND DISSEMINATION

The spreading of information about Annex III has been extensive. A summary of the Annex III procurement activities has been presented in a brochure, “The Challenge”, with leaflets for each technological area and for the process. The brochure was printed in two editions with 4,000 copies altogether and it has been widely distributed.

Participation in different conferences, workshops and seminars has been encouraged. The

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<sup>6</sup> Annex III London Proceedings: *Proceedings from the Annex III International Workshop ‘Accelerate Innovation and Market Transformation of Energy-Efficient Products’*, London 24-25 February 1999, compiled by Westling, H, Promandat AB, Stockholm 1999. Will be placed on [www.stem.se/IEAProcure](http://www.stem.se/IEAProcure).

Operating Agents and the Experts have participated actively in about 50-100 conferences over the years with papers informing about Annex III and the pilot projects. Examples of papers are given in Appendix 4.

As already mentioned, advertisements have been inserted in the “Official Journal of the European Communities” and similar official journals.

All the Experts were inspired to give information about projects in their countries and about other international activities of interest. Such information has been included in the documentation before and after the Experts Meetings.

An Annex III homepage ([www.stem.se/IEAprocure](http://www.stem.se/IEAprocure)) with links to the homepages of IEA DSM Programme (<http://dsm.iea.org>) and the IEA Secretariat has been used and has been regularly updated with information about the pilot projects. From the start of the “Hi-Motors” project, a special web site (<http://info.lut.fi/ente/sahko/Hi-Motors/Intro.htm>) was used for this project and the draft and the final specifications were presented there, as well as the decision of the jury as a background for the Award Ceremony. A special web site was also used for the “Copier of the Future” project (<http://www.epa.gov/appdstar/esoe/techpro.html>). Press information has also been published on the Annex III homepage and on the different web sites.

As mentioned earlier, two of the projects – the drier and the electric motor - were included in the IEA publication on “Success Stories” and they were also on show as prototypes at the IEA 25<sup>th</sup> Anniversary and Ministerial Meeting.



*Illustration 1. The winning AEG heat-pump drier – the first European “Class A” drier.*

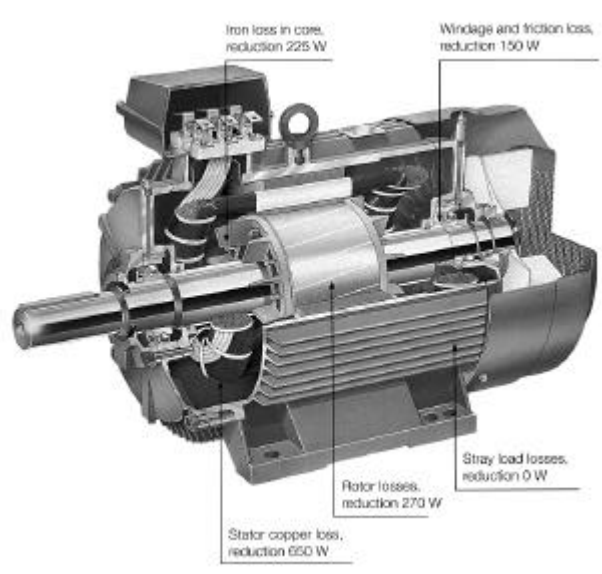
A large number of invitations were distributed both for the introductory Paris workshop and for the London workshop on lessons learned.

There are plans for a short *brochure* about the Annex III programme and the lessons learned. This brochure will be produced later this year provided that financing be allocated.

## 9. ACTIVITIES COMPLETED AND ACTIVITIES YET TO BE COMPLETED

The activities concerning formulation of a process, identification of technologies and fulfilment of pilot procurements and promotions have been accomplished. Three technological areas have been completed and have included an “IEA DSM Award of Excellence” ceremony – the “Drier Promotion Competition” ([Illustration 1](#)), the “IEA Hi-Motors Competition” ([Illustration 2](#)) and the “Copier of the Future Competition” ([Illustrations 3 and 4](#)).

The Annex III objectives have, on the whole, been fulfilled according to the External Evaluator, Professor Peter Lund (see further below). The process has been adjusted in accordance with findings made during the work. Some suggestions for future work have been given, see below under item 10.



*Illustration 2. Longer lifetime through reduced losses – ABB winning motor M2BA280.*

The main proposal in the Market Acceptance Process to have one country as project manager for a project area has been applied, see [Table 2](#).

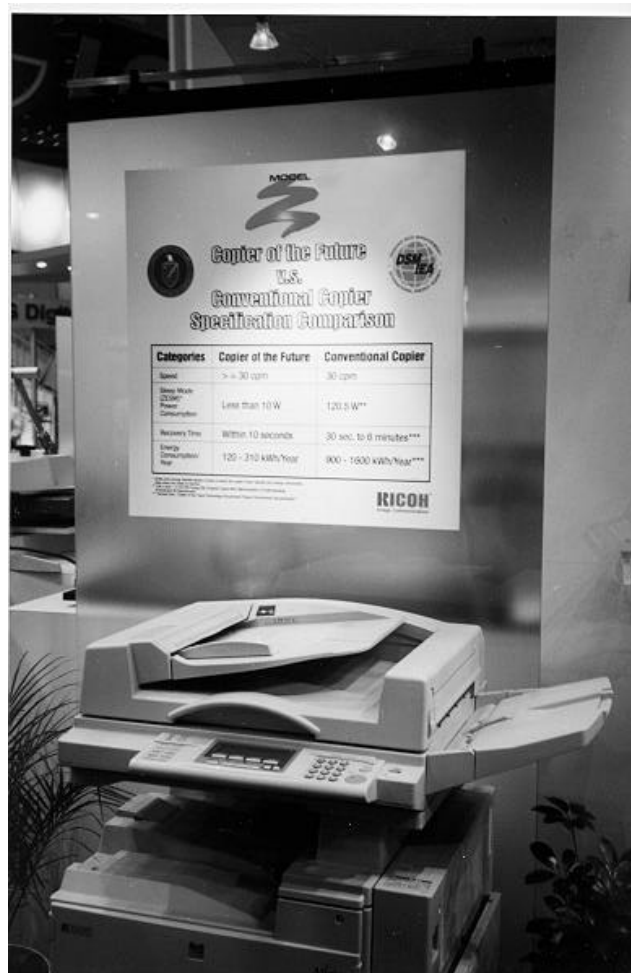
One area, the “LED Traffic Lights”, is still in the preparatory stage. Different subtasks are now considered: replacing individual lamps in existing signal heads and complete signal systems. There are plans to launch activities and to have concrete results in the year 2001.



Project area	Project Manager	
	Country	Person
Wet Appliances	The Netherlands	René Kemna
Lighting	United Kingdom	Paul Davidson
Copiers	United States	Alison ten Cate; Rachel Schmeltz (Bernard Aebischer during preparatory stage)
Motors	Finland	Heikki Härkönen
LED Traffic Lights	Sweden	Nils Borg

*Table 2. Overview of Annex III technological areas and Project Managers*

Two additional rounds are still to be fulfilled in the “Copier of the Future” competition, with application deadlines April 1 and October 1, 2000.



*Illustration 3. “Copier of the Future” – The winning Ricoh copier.*

These two projects will now be carried out within a subtask under the new IEA DSM “Market Transformation Task”, Task VII. In the Task, also other measures for market transformation will be treated, such as market research and a Market Forum. It will be possible for two or more countries to agree on concrete procurement and promotion projects and work under the umbrella of the new Task VII. It is important that the promotion activities can continue in order to facilitate dissemination of the results and the acceptance of the new solutions.



*Illustration 4. An “IEA DSM Award of Excellence” ceremony - The “Copier of the Future”, COMDEX/Fall, Las Vegas, USA, November 1999. Mr. Sakurai, President of Ricoh.*

## **10. UNRESOLVED ISSUES AND RECOMMENDATIONS FOR FUTURE WORK**

Before the London Workshop in February 1999, the Annex III Project Managers and Experts had identified about 60 lessons learned. In addition, the External Evaluator, Professor Peter Lund, Helsinki University of Technology, also came up with some main lessons and recommendations. In his Evaluation Report, he stresses the importance of understanding the market as a whole, and that not only the technology aspects but also the marketing and cost aspects are important. He also stresses the importance of making the technology procurement method more known among policy makers, manufacturers and buyers and to consider different procurement models, for instance a 2-stage procurement. Furthermore long-term support is needed, as this is a long-term, dynamic and learning process where it takes many years before the final outcome can be measured. He also suggests that an international forum for exchange of ideas and use be considered.

Some preliminary conclusions and actions were formulated at the Workshop, see section 11. In the findings from the London Workshop, it is stressed that procurement is an important mechanism for innovation. However, a combination of many mechanisms is essential if a market transformation should be possible. [Figure 6](#) illustrates this use of different instruments. It is also suggested to work further on the prestige of the “IEA DSM Award of Excellence” as a valuable

instrument for stimulation of innovation. It is further recommended to suggest clarifications in the existing public procurement rules, for example the EC Directives, in order to facilitate procurement efforts with innovation purpose.

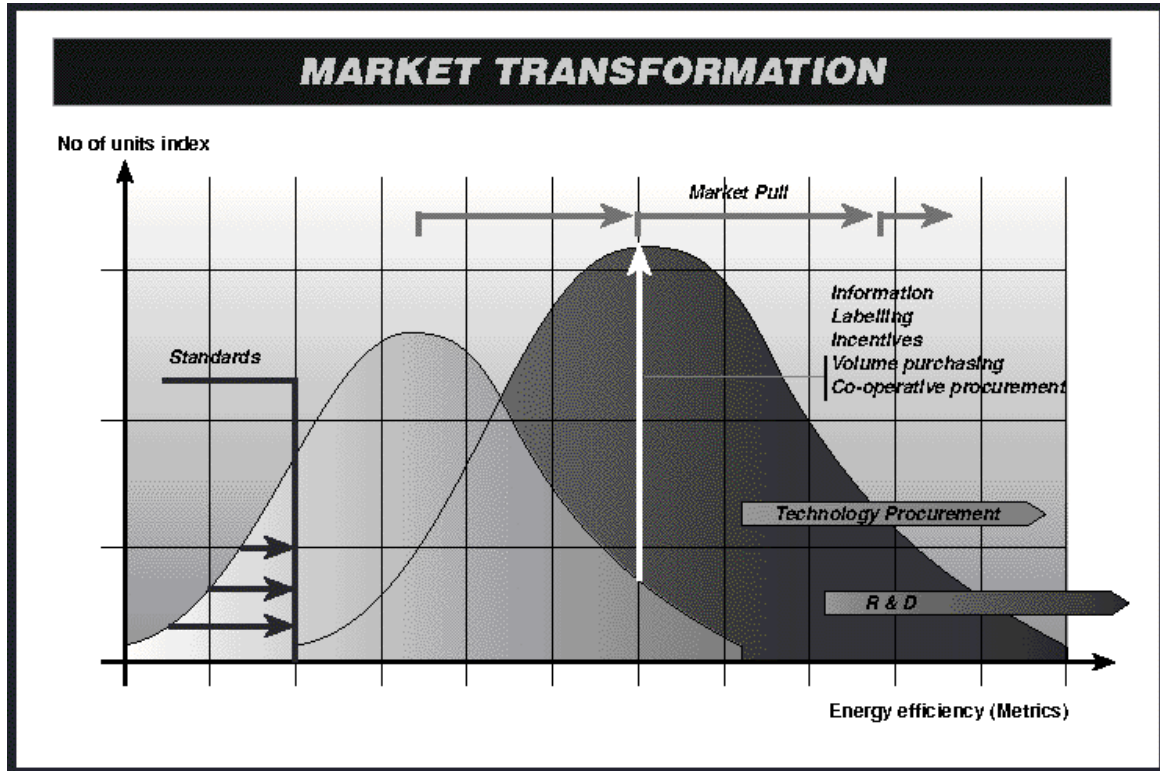


Figure 6. Use of many different instruments is essential to get a market transformation.  
(Adaption by H. Westling after John Millhone, DOE, USA)

## 11. MANAGERIAL RECOMMENDATIONS

It is difficult to discern between very general recommendations for all future Tasks and recommendations that actually emanated from the experiences in Annex III pilot projects. The recommendations are therefore of most value for future project-oriented Tasks on the *demand* side. An overview of the recommendations is shown in [Table 3](#).

1. It is recommended that the countries in future similar activities try from the initial stage to *set aside sufficient efforts* for facilitating the fulfilment of actions *during a long period of time*. *Continuity of high-level support*, including financing and personnel, is essential, since co-operative procurement is really a learning process. It is realistic to count with three to five years in many cases in order to identify the problem, agree on performance criteria, establish a network, set up buyer groups and fulfil procurement and promotion activities.
2. It is important to see to it early that the Experts in an Annex have *pronounced high-level support* in the different countries. This is an issue that was also raised at one of the Executive Committee Meetings.

<b>Organisation</b>	<ul style="list-style-type: none"> <li>- Goal agreement</li> <li>- High-level support</li> <li>- OA appointment decided in full agreement</li> <li>- Dialogue Operating Agent – ExCo about suitable background of Experts</li> <li>- Continuity of Experts</li> <li>- Involvement of all stakeholders</li> <li>- Market contacts early and repeatedly</li> <li>- Information specialists</li> </ul>
<b>Funding</b>	<ul style="list-style-type: none"> <li>- Sufficient amount during long time</li> <li>- Availability (fiscal years)</li> </ul>
<b>Time</b>	<ul style="list-style-type: none"> <li>- Too optimistic in beginning</li> <li>- Try to find “short-cuts”</li> <li>- Accelerated process</li> </ul>
<b>Process</b>	<ul style="list-style-type: none"> <li>- Technology procurement – not traditional, linear development process</li> <li>- Rather a circular, spiral, parallel learning process.</li> <li>- Every participating country active in at least one project.</li> <li>- Start with components and smaller systems.</li> <li>- Involve international chains of buyers/retailers.</li> <li>- Stress formulation of performance specification and recognition mechanism.</li> <li>- Collaboration with green purchasing initiatives.</li> </ul>

*Table 3. Lessons learned and recommendations after Annex III.*

3. In this Task, as in many other projects and activities, it is very important *to agree on the goals early* in the projects. Sufficient time should be allocated to these pre-investigations (feasibility studies) and discussions how to formulate and understand the goals, and how every stakeholder can identify what they can benefit from participating in the project.
4. The nomination of *National Project Managers and Experts* is an issue that should be done in dialogue with the Operating Agent.
5. By maintaining the continuity of persons, the countries can draw the most valuable experiences from the joint activities.

6. More work on *marketing activities* is needed early in the project, and involvement of all important stakeholders and systematic identification of existing barriers in the different markets should facilitate a market transformation.
7. *Information and dissemination* could involve *special experts* in this area, like the CADDET and others.
8. The level of collaboration has of course been influenced by the actual situation in the countries with changes of organisations, promotion of people to other areas and changed financial situations. The impression is that in some countries the work has really inspired to further national and international activities in the field of procurement and promotion. In other countries, perhaps for institutional and personal reasons, it may have taken a longer time to include these activities in their programmes.
9. The availability of money varies because of different *fiscal years* which has also an influence on when the Operating Agent actually can receive the contribution.
10. The *timetables* were initially drawn up *too optimistically*, which is a very common experience in development projects. Timetables often have the purpose of inspiring to early fulfilment of different activities. If placing the key events too far away, it would not give the same inspiration. It has been expressed a need to identify a quicker process - technology procurement with "short cuts".
11. It should also be stated that *innovation* very often is a *circular, or spiral process*, and not a linear one. Many areas and specialists will be included and technology procurement facilitates this work.
12. It should be more clearly stated that work in a co-operative procurement project really *is a process and a learning process*. It is important that the Experts and Specialists have a suitable background and sufficient time to spend on the work. It is also important to maintain continuity.
13. The different participants should be asked more outright to take *an active part at least in one concrete project* in order really to get value for money.
14. For international work it may be wise to *start the work with components and smaller systems*, which are less dependent on existing infrastructure and variations in culture and climate conditions. For more complicated systems it is necessary to have very firmly pronounced high-level support and long-term commitment in order to be successful.
15. The use of *international chains of users*, like retailers with chains of organisations in several countries, hotel chains and other international groups would facilitate the international work in this area.
16. Work also on *parts of the process* only, such as the formulation of *specifications* and the use of competitions with *recognition and awards*, can lead to important results in future projects.

17. In the future, work could have more as a starting-point *the risk of climate change* and also the interest in “*green purchasing*” in general. A number of different networks have been created already and a collaborative effort would be fruitful. With a combination of many instruments (mandatory standards, labelling, information, rebates, etc.) the penetration may be speeded up. These issues and inspiration from other successful areas will be handled in the new market Transformation Task.

It takes a very long time to see new solutions penetrate the market. This is also the case as regards energy-efficient products. Refinements, development of efficient production methods for the new products, imitations and alternative solution developments by competing suppliers will take place.

## **12. BUDGET FOLLOW-UP**

For the years 1994 – 1999, the cost-sharing part has been nearly 900,000 USD. In addition, voluntary contributions with approx. 100,000 USD have been made for the two workshops. However, the largest part has been the task-sharing efforts. A very rough estimation based only on the figure for 1997 of 33 person-months or 550,000 USD (see [Appendix 2](#)) indicates a total task-sharing effort of nearly 3 million USD for the whole duration of Annex III. Further information is given in [Appendix 5:1-3](#).

## **13. PARTICIPATING EXPERTS**

Experts from 8 countries and the European Commission have taken part in Annex III. A list of their names is included in [Appendix 6](#).

## **14. MEETINGS**

During the years, a large number of Experts meetings, national and international workshops and seminars have been held in Annex III. A compilation can be seen in [Appendix 7](#).

## **15. REPORTS AND OTHER MATERIAL**

Extensive documentation has been compiled in Annex III during the years. This has included documentation before each Experts meeting, minutes from each Experts meeting, Task Status and Annual Reports, technical specifications, competition documentation, jury reports, information material, papers on technology procurement in general and the IEA DSM Annex III activities. The Market Acceptance Process, Annex III and its different technological areas and the procurement competitions have also been presented on the Internet on the Annex III homepage and on other web sites. Examples of the documentation are mentioned in [Appendix 4](#).

Annex III Archives will be kept and include all the Task Status Reports, documentation before Experts Meetings, minutes and documentation after Experts Meetings and the material produced for the two Workshops. These archives will be kept by the Swedish National Energy Administration as well as by the acting Operating Agent, Hans Westling, Promandat AB.

PROJECT AREA	Lighting: Replacement Incandescent Lamp – Future Bulb	Wet Appliances: Drier Promotion Competition	Copiers: Copier of the Future	Consumer Electronics: Energy Efficient TV sets, decoders etc.	Vending machines	Industrial Motors and Components: IEA Hi-Motors Competition	LED Traffic Lights
1. Main goals	30% more efficient 3,000 burning hours LCC goal Dimmable, appearance as GLS lamp	50% energy reduction on household electric tumble driers, maximum price.	Low-power standby mode >90% energy reduction, total direct energy reduction >60%. Short recovery time.	Reduction of electricity consumption by procurement or other more informative actions supporting other ongoing projects.	Energy-reduction opportunities for future actions: Cold-drink machines 60%; Hot-drink machines 30%.	Decrease losses 20-40% compared to average motors. Price & performance level guaranteeing long-lasting significant market share.	Reduced energy by 35-90%, longer life, LCC goals. Reduced costs for service and maintenance. Goal: pay- back time 1-5 years.
2. Project Manager	Project Manager Paul Davidson, UK. Project Co- ordinator Nils Borg, Sweden.	René Kemna, The Netherlands. Alternate: H-P Siderius, The Netherlands.	Rachel Schmeltz, Alison ten Cate, USA. Bernard Aebischer, Switzer- land (during 1 <sup>st</sup> part of project)	Olof Molinder, Sweden (during introductory phase)	Eva Lembke/Preben Munter, Denmark (temporary, 1 <sup>st</sup> phase)	Heikki Härkönen, Finland.	Nils Borg, Sweden, on behalf of Swedish cities and in collaboration with The Netherlands
3. Interested countries	United Kingdom, Finland, The Netherlands, Sweden supporting ongoing US/DoD project.	The Netherlands, Sweden, United Kingdom, Spain, Finland, Denmark	Finland, The Netherlands, Sweden, Switzerland, United Kingdom, United States, Support: European Commission	Sweden, United Kingdom; Netherlands, United States (supportive participation) European Commission	Denmark, The Netherlands, USA (support.). Design competition planned in US for universities etc.	Finland as main actor; The Netherlands, United Kingdom, Denmark, Sweden, European Commission	The Netherlands, Finland, Sweden, United Kingdom, in collaboration with CEE in United States.
4. Technical specialists	Francis Rubinstein, LBNL, United States David Loe, United Kingdom	Jury: A. Klag, UK, H. Goerlitz/K. Koeppe, Germ. A. Horowitz, Sweden P. Terpstra, The Netherlands	Peter Jeanmaire, France Jeff Harris, US, Peter Hill, UK, Bruce Nordman, US, Göran Bryntse, Sweden.	Chris Evans, Consumer Association, United Kingdom.	Preben Munter, SEAS, Denmark.	Jorma Haataja and Juha Pyrhönen, Laapeenranta University of Technology, Finland.	Within City of Stockholm, Lighting Research Centre (Troy, NY, USA), National Road Administrations, technical consultants, user studies.
5. Project Status: - Preliminary studies - Performance spec. - Buyer groups	Ready Draft Oct. 96, final Apr. 97 Governments, housing comp., retailers, electric utilities	Ready February 1997 Retailers, utilities, housing and mail order companies; Workshop Nov. 15 1996	ZESM feasibility study ready September 1998 Governments, banks, insurance companies, universities, large corporations.	Partly ready. Developed for TV-sets. Hotels TV-set rental firms Procurement power supplies suggested by EC Nov. 97	Partly ready. Universities, hotel chains, governments, coffee and softdrink distributors.	Ready Ready June 1997 More than 30 industrial companies in Finland. No similar group in other countries.	Sept. 1999 Oct. 1999 - Nov. 2000 Sept. 1999 – Oct. 2000
6. Official pre-informa- tion	EU "Official Journal" 29 March 96 and 16 Apr. 97	EU "Official Journal", 15 May 1996	EU "Official Journal", 31 July 1996			EU "Official Journal", 19 September 1996	EU "Official Journal", 15 April 1999
7. Manufacturer contacts	At Hanover Fair 23 April 1996, and Hanover Fair 16 April 1997	Informal meetings 1996, 15 November 1996; Domotechnica Fair, Cologne, 19 February 1997	Meeting: Stockholm Sept. 11, 1996, Washington D.C. Dec. 2, 1997, Sept. 10, 1998 19 February 1997	General information at office equipm. Conferences & projects. EC/SAVE study /seminar Florence Nov. 97		Information meetings in connection with motor conferences in Lisbon Oct. 96 and in UK in Sept. 97	Important to have early and neutral contacts. Kick-off meeting in Stockholm, Sept. 1999
8. Call for tenders	Apr. 97 Hanover Fair, reissue Dec. 97, deadline Dec. 1998.	February 1997 at the Domotechnica Fair, Cologne.	September 22, 1998			24 June 97 on website; closing date opening round 15 Aug 98	June 2000 – Jan. 2001
9. Evaluation of bids and prototypes	Dec. 1998. Planned to start after receipt of poss. tenders.	Summer 97 – Winter 1998 (1 Jan. 1999)	Through Sept. 2000, accepting tenders every 6 <sup>th</sup> month.			15 Aug. 98 - 7 Dec. 98 (publ. jury report) Winner announced Feb. 99.	Sept. 2000 – April 2001
10. Products on market	During 2000	1997 – 1999	September 2001			Available on request	Sept. 2000 – 2002
11. Other information	The Buying Agency (TBA) in the UK willing to assist with call for tenders. No entry fulfilled all criteria. In a magazine a prototype presented Nov. 1999.	AEG 1 <sup>st</sup> Round Award Winner fulfilling all mandat. requirem. Ceremony 27 April 98. Start of Final Round Spring 98 closing date 1 Jan. 99. No entry in Final Round but a new product "Eco Dryer" launched in 99. Cost reducing program 2000 and prolonged campaign price.	Documentation available at: <a href="http://www.epa.gov/appdsta/r/esoe/techpro.html">http://www.epa.gov/appdsta/r/esoe/techpro.html</a> Ricoh 1 <sup>st</sup> Round Award Winner, Ceremony at COMDEX/Fall, Las Vegas, 16 Nov. 1999. Prototype and Award on show at CeBit, Fair, Hanover, Feb. .2000.	No pos. Reactions by Oct. 96 from US hotels. Project in rest mode. 2 procurement areas identified in EC/SAVE. Meetings 98-99 re opportunities. IEA workshop Paris Jan. 1999, Brussels Jan. 2000.	Testing method to be defined. Denmark stated March 97 no possibility to take Project Management. Project in rest mode.	Documentation available at: <a href="http://info.lut.fi/ente/sahko/Hi-Motors/Intro.htm">http://info.lut.fi/ente/sahko/Hi-Motors/Intro.htm</a> Presentation at EEMODS, London, Sept. 1999. ABB Award Winner, Ceremony 24 Feb. 1999 at Annex III Workshop, London.	Two efforts: Short run: replacement lamps, further investigation, Local procurement activities Long run: Whole systems PM Sweden/The Netherlands



## OVERVIEW OF ANNEX III EFFORTS

Compilation based on information supplied for the "End of Term Report for the IEA Demand-Side Management Programme", February 1998.

### Industry participation in Annex III Meetings in 1997:

Industry representatives participating in formal Task Experts Meetings      0 out of 29

6 of 14 Annex III Experts had earlier industry background

Industry attendance at Seminars (open meetings)      740

Attendance by representatives from equipment supply  
companies at Task Meetings and/or Seminars      60

<u>Annex III meetings in 1997:</u>	Number of meetings	Number of participants
Technical Meetings and Workshops	2	29
Seminars and Conferences	12	300

Annex III cost-sharing in 1997:      USD 130,000

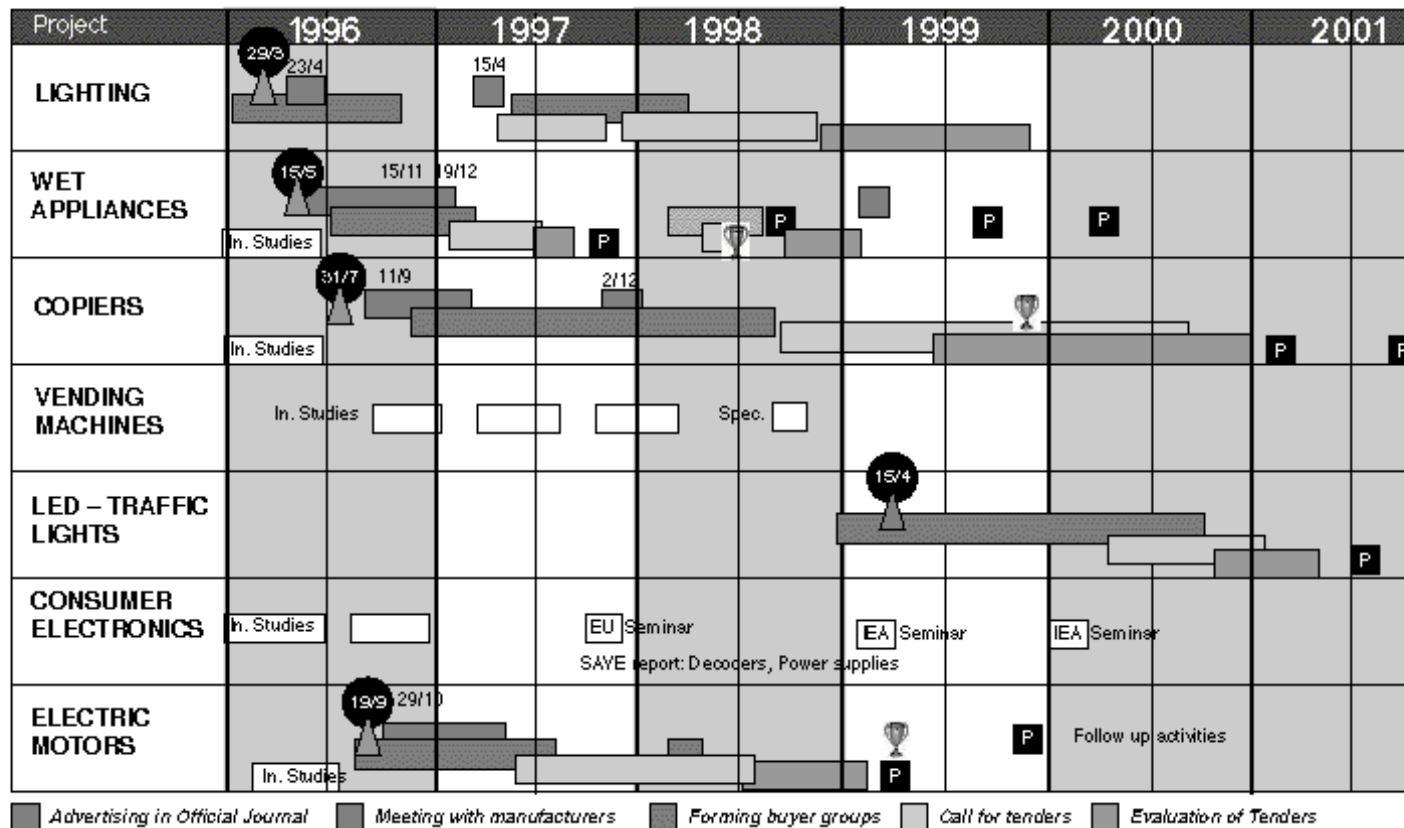
Annex III task-sharing in 1997:      USD 550,000      33 person-months

Jan 28, 2000

PROMANDAT AB

## ANNEX III – PROCUREMENT PROJECTS

Time schedule 1996–2001



### ANNEX III – LIST OF REPORTS

Examples of reports, working documents, specifications, competition documents and information material prepared by the Operating Agent and by/for the Experts during the years 1994 – 1999.

#### 1994

- *Technology Procurement - Examples of Specifications of Requirements*, by Hans Westling, Promandat AB, Sweden: *Part 1* - February 1994, *Part 2* – September 1994.
- Material for overhead projection with *a summary of U.S. activities update about technology purchasing* prepared by Jeffrey Harris, LBNL, United States, March 1994.
- *Case Study - Clothes Washers and Dryers for Laundry Rooms in Apartment Blocks -Sweden*, report by Hans Westling, Promandat AB, Sweden, April 1994.
- *Technology Procurement for Household Appliances*, draft report by the Danish Energy Agency, Denmark, May 1994.
- *Product Specifications in the Netherlands, in terms of energy-efficiency, relevant to Annex III*. Van Holsteijn en Kemna, Netherlands, June 1994.
- *Accelerating the Development of High Efficiency, Dedicated Residential Compact Fluorescent Fixtures*, draft by Michael Siminovitch, Francis Rubinstein and Evan Mills, LBNL, United States, August 29, 1994.
- *Market research of the energy using equipment*, by H. Lempinen, Motiva, Finland, September 1994.
- Documents for the *Annex III conference "Market-Pull Activities and Co-operative Procurement of Innovative Technologies"*, Paris, France, November 29-30, 1994, prepared by Hans Westling, Promandat AB, Sweden:
  1. *Questionnaire*, (February 1994)
  2. *Summary of Report*, (September 1994)
  3. *Programme for Workshop*
  4. *Conference Documentation, Part 1* - Market Acceptance Process
  5. *Conference Documentation, Part 2* - (Reports and memos ready before the Conference)
  6. *Documentation from Workshops on - Copiers - Wet Appliances – Lighting*
  7. *Conference Documentation, Part 3* - Additional Documentation from Conference.
- *Developing Markets for Energy-Efficient Copiers*, draft report by Jeffrey Harris, LBNL; Bernard Aebischer, ETH; Jim Clark, Energy Efficient Programs Div, Resources Canada; Cyane Dandridge, EPA; Olof Molinder, NUTEK; Bruce Nordman, LBNL, November 1994.
- *Comments on the experience of initiating a technology procurement programme in Finland*, by Heikki Härkönen, Motiva, Finland, November 1994.

- *Wet Appliances (Track II of the Workshop)*, summary by René Kemna, Van Holsteijn en Kemna, Netherlands, December 3, 1994.
- *The Electroheat, Motor of the Industrial Progress*, paper by Julio Peña, ADAE, Spain, for the World Energy Council, 15<sup>th</sup> Congress, Madrid, September 1992. (Presented for Annex III 1994)
- *European Commission Efforts to Promote More Efficient Use of Electricity: The PACE Programme*, by Paulo Bertoldi. From *Energy in Europe*, 23/1994. (Presented for Annex III 1994)

## 1995

- *Workshop Summary: Technical Opportunities and Market Development for Energy-Efficient Copiers*, by Jeffrey Harris, LBNL, United States, February 1995.
- *Electricity demand for domestic appliances in the rest state. Reducing standby power demand*. Proposal for an international project, by Olof Molinder, NUTEK, Sweden, February 1995.
- *Request for a proposal to the IEA DSM III agreement regarding planning for technology procurement of a light source*, by Egil Öfverholm, NUTEK, Sweden, February 1995.
- *Preparing for Pilot-Projects - Product Group: Wet Appliances*, memo by René Kemna, Van Holsteijn en Kemna, The Netherlands, May, 1995. (Further reference to a number of GEA reports.)
- *Energy Efficient Entertainment Electronics for International Hotels*, Project overview by Olof Molinder, NUTEK, Sweden, May 1995.
- *Cold & Hot Drinks Automatic Vending Machines - Preliminary Project on Improved Energy Efficiency*, report by Preben Munter, SEAS/Danish Energy Agency, Denmark, May 1995.
- *Notes from meetings at the Commission of the European Union 22-23 May 1995*, drawn up by Hans Westling, Promandat AB, Sweden, June 1995.
- *European Union Energy Efficiency Policy*, presentation by Paolo Bertoldi, DG XVII European Commission, at the Right Light Three Conference, Newcastle, June 1995.
- *Technical Specification for an Improved Efficiency General Lighting Service Lamp*. Final Report by Francis Rubinstein, LBNL. United States, October 1995.
- *Co-operative Procurement for Innovative Energy-Efficient Solutions*, paper by Hans Westling, Promandat AB, Sweden, for the Workshop before the ExCo Meeting in Fukuoka, Japan, October 1995.
- *Procurement of Copiers: Progress Report* by Bernard Aebischer, ETH, Switzerland, November 1995.

- *Progress Report. IEA-DSM Annex III Technology Procurement. Planning and Budget Scenarios. Working Group Wet Appliances*, by René Kemna, Van Holsteijn en Kemna, The Netherlands, November 1995.

## 1996

- *Co-operative Procurement. Market Acceptance for Innovative Energy-Efficient Technologies*. Report B 1996:3 NUTEK/IEA by Hans Westling, Promandat AB, Sweden. January 1996.
- *IEA DSM Agreement, Annex III Co-operative Procurement of Copiers*, by Bernard Aebischer, ETH, Switzerland, January 1996.
- *Energy Efficient Entertainment Electronics for International Hotels. A Way to Save Money and the Environment through International Procurement Program*, project outline by Olof Molinder, NUTEK, Sweden, January 1996.
- *Feasibility of Zero Energy Standby Mode (ZESM) for Electrophotographic Engines with copy speed in the range of 20 to 40 copies per minute or higher*. Report drawn up by Peter Jeanmaire, consultant, Switzerland, February 1996.
- *Technological Areas – Overview* (continuously updated) by Hans Westling, Promandat AB, Sweden, February 1996.
- *The Challenge - Annex III Information Brochure*, including inserts *Market Acceptance Process, Consumer Electronics, Lighting, Wet Appliances and Copiers*, February-June 1996. Hans Westling, Promandat AB, Sweden
- *Energy Consumption and User Behaviour Patterns for Copiers (Minolta EP 5400, Ricoh FT 3212)*. Report drawn up Arvid Levinsson and Anna Nicander, Dalarna University, for NUTEK, Sweden, March 1996.
- *Co-operative Procurement. A Tool for Accelerating Innovation*, paper by Hans Westling, Promandat AB, Sweden, for the Special Session of the ExCo Meeting in Paris, France, March 1996.
- *Methodology for the efficient technologies selection from a market point of view. Lighting and wet line cases*, presentation by Carmen Dávila, REE, Spain, for the Annex III Special Workshop in Madrid, March 1996.
- *Specification of Requirements for High Efficiency Induction Motors, Draft 2*. Report by Juha Pyrhönen, Jorma Haataja, Kari Luostarinen and Heikki Härkönen, for MOTIVA, Finland, April 1996.
- *Feasibility of Zero Energy Standby Mode (ZESM) for Electrophotographic Engines with copy speed in the range of 20 to 40 copies per minute or higher. Report 2: Extended Patent Search and Preparation of Discussions with Manufacturers*, drawn up by Peter Jeanmaire, consultant, Switzerland, May 1996.

- *Technology Procurement. Pilot Projects. Wet Appliances. An Invitation.* Brochure by René Kemna, Van Holsteijn en Kemna, The Netherlands, June 1996.
- *More efficient than incandescents, less efficient than CFLs - Why look for an improved efficiency General Lighting Service (GLS) lamp?*, summary by Nils Borg, Borg & Co, Sweden, June 1996.
- *Procurement of a replacement incandescent lamp: Progress Report to June 1996*, by Paul Davidson, BRE, United Kingdom, June 1996.
- *Cold and hot drinks automatic vending machines - continuation of project.* Description of project by Kenn Skau Petersen, Danish Energy Agency, Denmark, June 1996.
- *LED Traffic Signals*, background memo by Kalle Hashmi, NUTEK, Sweden, June 1996.
- *Department of Energy Efficiency - NUTEK: Energy-efficient lamps*, report drawn up by Johan Arndt and Mia Hårsman, Sweden, August 1996.
- *Co-operative Procurement of Innovative Copiers.* Summary report. Bernard Aebischer, ETH, Switzerland. September 1996.
- *Co-operative Procurement*, paper by Hans Westling, Promandat AB, Sweden, for the US GSA TEEM'96 Conference, Monterey, USA, September 1996.
- *Co-operative Procurement for Innovation and Energy Efficiency*, paper by Hans Westling, Promandat AB, Sweden, for the Energy Management: Opportunities in Changing Energy Markets conference in Sydney, Australia, October 1996.
- *Cold and Hot Drinks Automatic Vending Machines - Continual Project on Improved Energy Efficiency.* Report. Preben Munter, SEAS/Danish Energy Agency, Denmark. December 1996.

## 1997

- *Call for Competition Entries. IEA-DSM Drier Promotion Competition*, issued by The Netherlands Agency for Energy and the Environment, NOVEM on behalf of IEA-DSM Annex III. Dated Köln, Germany, 19 February 1997.
- *The Challenge.* Annex III Information Brochure and Inserts, updates. March 1997.
- *Replacement Incandescent Lamp - An International Energy Agency Technology Procurement Competition.* Issued by BRE (United Kingdom), NUTEK (Sweden), Motiva (Finland), NOVEM (The Netherlands) on behalf of the International Energy Agency (IEA), March 24, 1997. Date of issue: April 16, 1997. Including:
  1. *Competition Documentation*, April 16, 1997
  2. *Technical Background Report: Technical Specifications for an Improved Efficiency General Lighting Service Lamp*, Francis Rubinstein, LBNL USA, January 22, 1997
  3. *Energy Efficient Bulbs. A Swedish Market Study.* Johan Arndt & Mia Hårsman, Stockholm 1996-08-04.

- *Technology Procurement. An Innovation Tool for More Efficient Construction Solutions*, paper by Hans Westling, Promandat AB, Sweden, for the CIB W92's 1997 Symposium "Procurement – A Key to Innovation", Montreal, Canada, May 1997.
- *Competition Entries: IEA Hi-Motors Competition*, issued by Motiva on behalf of IEA DSM Annex III (Finland June 1997). Including *Technical Specifications and Data Required*. Date of issue: June 24, 1997.
- *Procurement of Innovative Copiers – Progress Report Summer 19997*, by Bernard Aebischer, ETH, Switzerland, August 1997.
- *Buyer Co-operation for More Efficient Solutions*, paper by Hans Westling, Promandat AB, Sweden, for the DA/DSM DistribuTECH Europe 97 conference in Amsterdam, The Netherlands, October 1997.
- *Korea Energy Management Corporation, KEMCO*, information leaflet, October 1997.
- *Presentations of Annex III on the Internet* ([www.stem.se/IEAprocure/](http://www.stem.se/IEAprocure/)), continuously updated, including:
  1. Annex III Co-operative Technology Procurement
  2. Co-operative Procurement. Market Acceptance for Innovative Energy-Efficient Technologies
  3. The Challenge and The Market Acceptance Process
  4. Replacement Incandescent Lamp
  5. Wet Appliances and Drier Promotion Competition
  6. Efficient Copiers
  7. High Efficient Induction Motors
- *Presentation on the Internet* (<http://www.epa.gov/appdstar/esoe/techpro.html>) of the *Copiers of the Future* procurement.
- *Presentation on the Internet* (<http://info.lut.fi/ente/sahko/Hi-Motors/Intro.htm>) of the *IEA Hi-Motors Competition*.

## 1998

- *Report of the Jury - IEA-DSM Drier Promotion Competition 1997/1998*, issued by The Netherlands Agency for Energy and the Environment NOVEM, April 1998.
- *Drier Award Ceremony - Press Conference Material*, NOVEM, The Netherlands, April 1998.
- *Improving Three-Phase Induction Motor Efficiency in Europe - The Challenge for Manufacturers*, article in the "Power Engineering Journal" by J. Haataja and J. Pyrhönen, Finland, April 1998.
- *IEA Hi-Motors Competition - Project Report Summary*, Heikki Härkönen, Motiva, Finland, May 1998.

- *Internationally Coordinated Procurement of Innovative Copiers. Project Management October 1995-September 1997*, Bernard Aebischer, ETH, Switzerland, May 1998.
- *Technology Procurement Preparations for Collaborative Buying Actions for Energy Efficient Equipment*, final report to the European Commission, DG XVII, by Hans Westling, May 1998.
- *Collaborative Performance-Based Purchasing For Sustainable Innovation*, paper by Hans Westling, Promandat AB, Sweden, for the CIB World Building Congress 1998, Gävle, Sweden, June 1998.
- *Copier of the Future Technology Procurement Project - Competition Documentation* (draft), Alison ten Cate, EPA, United States, June 1998.
- *Stockholm LED Traffic Signal Procurement Project*, draft background report, Nils Borg, Borg & Co, Sweden, June 1998.
- *Collaborative Performance-Based Purchasing for Sustainable Innovation*, paper by Hans Westling, Promandat AB, Sweden, for the CIB World Building Congress in Gävle, Sweden, June 1998.
- *Annex III LED Traffic Light Proposal*, background report by Nils Borg, Borg & Co, Sweden, August 1998.
- *Technology Procurement as a Market Transformation Tool*, paper by Alison ten Cate, EPA, USA, Jeff Harris, LBNL, USA, John Shugars, consultant to LBNL, USA, and Hans Westling, Promandat AB, Sweden, for the 1998 ACEEE Summer Study, Asilomar, USA, August 1998.
- *Copier of the Future Technology Procurement Project - Competition Documentation*, by Alison ten Cate, EPA, United States. First published September 1998, last revision November 1998.
- *Buyer Collaboratives and Performance Criteria for Greener Buildings*, paper by Hans Westling, Promandat AB, Sweden, for the Green Building Challenge '98 Conference, Vancouver, B.C., Canada, October 1998.
- *IEA Hi-Motors Competition - Jury Report*, issued by Motiva, Finland, December 1998.

## 1999

- *Proceedings from the Annex III Workshop 'Accelerate Innovation and Market Transformation of Energy-Efficient Products*, London, United Kingdom, 24-25 February 1999. Compiled by Hans Westling, Promandat AB, Sweden, July 1999.



Examples of presentations and reports prepared for the Annex III Workshop and included in the Workshop Proceedings:

1. *Overview of Annex III Work - Procurement Process, Pilot Projects and Self-Evaluations*, report by Hans Westling, Promandat AB, Sweden.
  2. *IEA DSM Annex III Co-operative Procurement - Case studies*, short presentations by Hans Westling and the Project Managers.
  3. *Lighting Energy Efficiency Partnership, LEEP - Case Study*, short presentation by Keven Verdun, The Lighting Association, United Kingdom.
  4. *Annex III Technology Procurement - Copier Pilot Project: Evaluation Case Study*, presentation by Alison ten Cate, EPA, United States.
  5. *IEA-DSM Annex III - Co-operative Procurement: Project Update - Future Bulb*, by Paul Davidson, BRE, United Kingdom..
  6. *U.S. Energy-Efficiency Technology Procurement Projects: Evaluation and Lessons Learned*, report by Marc Ledbetter, PNNL, United States.
  7. *Evaluation of Annex III on Cooperative Procurement of The International Energy Agency's Demand Side Management Agreement*, report by Peter Lund, Solpros, Finland.
  8. *The European Union Policies and Programmes for Market Transformation of End-use Equipment*, presentation by Paolo Bertoldi, DG XVII, European Commission.
- *Kemco 1998 Annual Report*, (Korea Energy Management Corporation), February 1999.
  - *Regulation for the promotion of the dissemination of energy-saving office equipment/appliances*, presentation by Kwang-Hong Shin, KEMCO, Korea, April 1999.
  - *High efficiency energy equipment/appliance certification system*, presentation by Kwang-Hong Shin, KEMCO, Korea, April 1999.
  - *Technology Procurement for Efficient Systems*, paper by Hans Westling, Promandat AB, Sweden, for the CIB 99 Joint Triennial Symposium "Customer satisfaction: A focus for research & practice", Cape Town, South Africa, September 1999.
  - *Documentation for the Copier of the Future Award Presentation*, prepared by Rachel Schmeltz, EPA, United States, November 1999.
  - *Documentation before and after the LED Traffic Signals Workshop*, prepared by Nils Borg, Borg & Co, Sweden, September and December 1999.
  - *IEA Hi-Motors Competition. Notes presented at the IEA DSM Annex III Experts Meeting in Stockholm on 1 December 1999*, by Heikki Härkönen, Motiva, Finland. December 1999.

In addition to the documents presented above, extensive pre-meeting documentation and minutes have been compiled by Hans Westling, Promandat AB, Sweden, for every Annex III Experts Meeting during the years.

**ANNEX III – COST-SHARING CONTRIBUTIONS AND SPENDING 1994 - 1999**

Amounts in USD 1,000 (VAT not included)	1994	1995	1996	1997	1998	1999	
	Outcome	Outcome	Outcome	Outcome	Outcome	Budget	Outcome
<b>TOTAL CONTRIBUTIONS<sup>1)</sup></b>	105	121	121	131	140	140	130 <sup>2)</sup>
<b>COSTS</b>							
1. Operating Agent: Time paid in full by NUTEK/STEM, Sweden.	0	0	0	0	0	0	0
2. Documentation, typing, printing, copying, distribution for Experts meetings <sup>3)</sup>	30	41	40	45	45	45	45
3. Travel expenses	15	15	17	14	17	20	19
4. Paris Conference 1994	48 <sup>4)</sup>	-	-	-	-	-	-
5. Funds reserved for specialists	12	-	-	-	-	-	-
6. Experts' reports for functional requirements for technological areas, Phase I	-	20	-	-	-	-	-
7. Common costs for specification for technologies and technical evaluation	-	11	48	38	35	20	-
8. Consultation of legal expert (tendering process)	-	9	6	5	10	-	-
9. Some general common costs for tendering documentation & information	-	24	6	22	10	10	5 <sup>5)</sup>
10. London Workshop 1999 on lessons learned incl. Documentation	-	-	-	-	20 <sup>6)</sup>	45	61 <sup>7)</sup>
<b>Total cost-sharing costs</b>	<b>105</b>	<b>120</b>	<b>117</b>	<b>124</b>	<b>137</b>	<b>140</b>	<b>140</b>
<b>TOTAL COST-SHARING COSTS 1994 – 1999</b>							<b>883</b>

1) Fluctuations in exchange rates between currencies.

2) European Commission contributed to the Workshop instead.

3) Additional contributions from NUTEK/STEM to varying extent over the years.

4) Additional contributions were also received from NOVEM, DOE, CEE and NUTEK.

5) 5' set aside for Award ceremonies.

6) Includes 20' set aside as planned for 1999 Workshop on Lessons Learned.

7) Additional contributions see Appendix 5:2.

### ANNEX III - DETAILED COST-SHARING CONTRIBUTIONS

Amounts in USD 1,000	1998	1999
	Decided by ExCo March 1997, 1 year	Decided by ExCo March 1998, 1 year
Denmark	6,913	6,913
EC	10,000 <sup>1)</sup>	10,000 <sup>2)</sup>
Finland	7,021	7,021
Korea	10,381	10,381
Netherlands	8,923	8,923
Spain	11,404	11,404
Sweden	8,077	8,144
UK	21,000	21,000
USA	57,633	57,633
World Bank	0 <sup>3)</sup>	0 <sup>3)</sup>
<b>Total</b>	<b>141,352</b> <b>approx. 141'</b>	<b>141,449<sup>4)</sup></b> <b>approx 141'</b>

- 1) Total: 20,000 ECU incl. VAT through a contract with the Operating Agent
  - 12,000 ECU, approx. 13,300 US\$ received 1997
  - 8,000 ECU, approx. 9,000 US\$ received 1998
- 2) EC has contributed ECU 14,750, approx. 16,000 US\$, to the Annex III Workshop on Lessons Learned in a contract with the Building Research Establishment (BRE), UK.
- 3) Funding only possible through task-sharing within already decided projects/programmes with specific countries.
- 4) For the Annex III Workshop on Lessons Learned additional financing has been identified see below:

#### Additional Contributions for Workshop on Lessons Learned

	<u>ECU</u>	<u>USD</u>
- United Kingdom <sup>5)</sup>	7,500	8,500
- United States	6,750	7,500
- Finland	2,250	2,500
- Sweden	9,000	10,000
- The Netherlands	6,000	7,000
- European Commission	<u>14,750</u>	<u>16,200</u>
<b>Total funding</b>	<b>46,250</b>	<b>51,700</b>

- 5) Further contribution by United Kingdom with time for some persons.

### ANNEX III – LONDON 1999 WORKSHOP ON LESSONS LEARNED

	In 1,000 units		
<sup>1)</sup>	SEK	USD	EURO
<b>FUNDING</b>			
From cost-sharing 1998		20	
From cost-sharing 1999		45	
Extra contributions <sup>2)</sup>		52	
<b>Total</b>		<b>117</b>	<b>109</b>
<b>COSTS</b>			
For UK expenses in London through BRE		64	59
Operating Agent <sup>3)</sup> for preparations and Documentation	138	16	
External Evaluation	256	30	
Report on US cases		7	
<b>Total</b>		<b>117</b>	

<sup>1)</sup> There have been fluctuations in the exchange rates between the currencies during 1998 and 1999.

<sup>2)</sup> United Kingdom has also contributed EURO 13,545 in staff time.

<sup>3)</sup> Operating Agent's time paid in full by STEM, Sweden.

## **ANNEX III – PARTICIPATING EXPERTS, PROJECT MANAGERS AND SPECIALISTS**

### **OPERATING AGENT**

Dr. Hans Westling  
Promandat AB  
P. O. Box 24205  
SE-104 51 Stockholm, Sweden  
Phone: +46-8 667 80 20  
Fax: +46-8 660 54 82  
E-mail: [hans.westling@promandat.se](mailto:hans.westling@promandat.se)

### **COMMISSION OF THE EUROPEAN UNION**

Mr. Paolo Bertoldi  
Commission of the European Union  
Directorate General XVII Energy  
Rue de la Loi 200  
B-1049 Brussels, Belgium  
Phone: +32-2 295 2204  
Fax: +32-2 295 5852  
E-mail: [paolo.bertoldi@cec.eu.int](mailto:paolo.bertoldi@cec.eu.int)

### **DENMARK**

Ms. Maria Rizzo  
Danish Energy Agency  
Amaliegade 44  
DK-1256 Copenhagen K, Denmark  
Phone: +45-33 92 68 90;  
Fax: +45-33 91 55 81  
E-mail: [mcr@ens.dk](mailto:mcr@ens.dk)

Ms. Rina Sapru  
Danish Energy Agency  
Amaliegade 44  
DK-1256 Copenhagen K, Denmark  
Phone: +45-33 92 67 01/00  
Fax: +45-33 92 75 48  
E-mail: [rs@ens.dk](mailto:rs@ens.dk)

Mr. Preben Munter  
(Specialist Vending Machines)  
SEAS Energy Advisory Services  
Slagterivej 25, DK-4690 Haslev, Denmark  
Phone: +45-56 37 2457  
Fax: +45-56 37 2504

### **FINLAND**

Mr. Heikki Härkönen  
Motiva  
P. O. Box 489  
FIN-00101 Helsinki, Finland  
Phone: +358-9 8565 3109  
Fax: +358-9 8565 3199  
E-mail: [heikki.harkonen@motiva.fi](mailto:heikki.harkonen@motiva.fi)

Mr. Seppo Silvonen  
Motiva  
P. O. Box 489  
FIN-00101 Helsinki, Finland  
Phone: +358-9 8565 3101  
Fax: +358-9 8565 3199  
E-mail: [seppo.silvonen@motiva.fi](mailto:seppo.silvonen@motiva.fi)

### **KOREA**

Dr. Shin, Kwan-Hong  
R&D Management Departm. I, KEMCO  
3001-1 Pungdukechun-ri, Suji-eub,  
Yongin, Kyonggi 449-840, Republic of  
Korea  
Phone: +82-331-2604 211  
Fax: +82-331-2604 215  
E-mail: [khshin@kemco.or.kr](mailto:khshin@kemco.or.kr)

Dr. Oh, Dae-Gyun  
R&D Management Center of Energy and  
Resources (RACER), 935-34 Pang Bae-  
dong, Seochu-ku, Seoul, Republic of  
Korea  
Fax: +82-2 522 8093  
E-mail: [dgoh@netra.racer.or.kr](mailto:dgoh@netra.racer.or.kr)

### **NETHERLANDS**

Mr. Ruud Trines  
NOVEM  
P. O. Box 8242  
NL-3503 RE Utrecht, The Netherlands  
Phone: +31-30 239 36 45  
Fax: +31-30 231 64 91  
E-mail: [r.trines@novem.nl](mailto:r.trines@novem.nl)

**(NETHERLANDS continued)**

Mr. René Kemna  
Van Holsteijn en Kemna  
Electronicaweg 14  
NL-2628 XG Delft, The Netherlands  
Branch office: Av. Albert 126  
B-1190 Brussels, Belgium  
Phone: +31-15 275 57 55  
(Belg.) +32-2 349 10 20  
Fax: +31-15 275 57 88  
(Belg.) +32-2 349 1028  
E-mail: [r.kemna@vhk.nl](mailto:r.kemna@vhk.nl)

Mr. Hans-Paul Siderius  
Van Holsteijn en Kemna  
Electronicaweg 14  
NL-2628 XG Delft, The Netherlands  
Phone: +31-15 275 57 55  
+31-15 275 57 63  
Fax: +31-15 275 57 88  
E-mail: [h.p.siderius@vhk.nl](mailto:h.p.siderius@vhk.nl)

**SPAIN**

Mr. Fernando Borbon  
Sevillana (ENDESA Group)  
Dept. of Marketing, Avenida Borbolla, 5  
E-41004 Sevilla, Spain  
Phone: +34-95-441 73 11  
Fax: +34-95-453 49 53  
E-mail:  
[borbon@sevillana.grupoendesa.com](mailto:borbon@sevillana.grupoendesa.com)

**SWEDEN**

Mr. Egil Öfverholm  
Swedish National Energy Administration  
P. O. Box 310  
SE-631 04 Eskilstuna, Sweden  
Phone: +46-16 544 20 40  
Fax: +46-16 544 22 60  
E-mail: [egil.ofverholm@stem.se](mailto:egil.ofverholm@stem.se)

Ms. Heini-Marja Suvilehto  
Swedish National Energy Administration  
P. O. Box 310  
SE-631 04 Eskilstuna, Sweden  
Phone: +46-16 544 20 58  
Fax: +46-16 544 22 60  
E-mail: [heini-marja.suvilehto@stem.se](mailto:heini-marja.suvilehto@stem.se)

Mr. Nils Borg  
(Lighting & LED Traffic Lights)  
Borg & Co  
Sveavägen 98, IV  
SE-113 50 Stockholm, Sweden  
Phone: +46-8 673 11 31  
Fax: +46-8 673 04 44  
E-mail: [nils@borgco.se](mailto:nils@borgco.se)

Dr. Göran Bryntse  
(Specialist Copiers)  
University of Dalarna  
S-781 88 Borlänge, Sweden  
Phone: +46-23 77 8846  
Fax: +46-23 77 8050  
E-mail: [gbr@du.se](mailto:gbr@du.se)

Mr. Artur Horowitz  
(Specialist Wet Appliances)  
Strandvägen 57  
SE-191 35 Sollentuna, Sweden  
Phone: +46-8 35 68 86  
Fax: +46-8 35 68 86  
E-mail:  
[artur.horowitz@mailbox.calypso.net](mailto:artur.horowitz@mailbox.calypso.net)

Mr. Olof Molinder  
(Home Electronics)  
Omvärden Konsult AB  
Bardabacken 1, S-167 71 Bromma,  
Sweden  
Phone: +46-8 25 00 18  
Fax: +46-8 80 56 65  
E-mail: [olof.molinder@omva.se](mailto:olof.molinder@omva.se)

**SWITZERLAND**

Dr. Bernard Aebischer  
(Copiers)  
CEPE (Centre for Energy Policy &  
Economics)  
ETH Zentrum, WEC, Weinbergstrasse 11,  
CH-8092 Zurich, Switzerland  
Phone: +41-1 632 41 95  
+41-1 632 06 50  
Fax: +41-1 632 10 50  
E-mail:  
[bernard.aebischer@cepe.mavt.ethz.ch](mailto:bernard.aebischer@cepe.mavt.ethz.ch)

**UNITED KINGDOM**

Dr. Paul Davidson  
BRECSU, BRE, Building Research Establ.  
Garston, Watford WD2 7JR  
United Kingdom  
Phone: +44-1923 66 44 37  
Fax: +44-1923 66 40 87  
E-mail: [davidsonp@bre.co.uk](mailto:davidsonp@bre.co.uk)

Mr. Peter Hill  
(Copiers)  
BRECSU, BRE,  
Building Research Establishment  
Garston, Watford, WD2 7JR,  
United Kingdom  
Phone: +44-1923 66 47 74  
Fax: +44-1923 66 40 97  
E-mail: [hillp@bre.co.uk](mailto:hillp@bre.co.uk)

Mr. Paul White  
ETSU  
Harwell, Didcot, Oxfordshire, OX11 0RA  
United Kingdom  
Phone: +44-1235 43 35 83  
Fax: +44-1235 43 23 90  
E-mail: [paul.white@aeat.co.uk](mailto:paul.white@aeat.co.uk)

**UNITED STATES**

Mr. Marc LaFrance  
Office of Building Equipment  
U.S. Department of Energy, DOE  
Mail Stop EE-42, Room 5E-036  
1000 Independence Avenue SW  
Washington, DC 20585-0121, USA  
Phone: +1-202 586 8423  
Fax: +1-202 586 5557  
E-mail: [Marc.Lafrance@ee.doe.gov](mailto:Marc.Lafrance@ee.doe.gov)

Mr. Jeff Harris  
Lawrence Berkeley National Laboratory  
Energy & Environment Division  
1250 Maryland Avenue S.W., Suite 500  
Washington, DC 20024, USA  
Phone: +1-202 484 08 83  
Fax: +1-202 484 08 88  
E-mail: [jpharris@lbl.gov](mailto:jpharris@lbl.gov)

Ms. Rachel Schmeltz  
U.S. Environmental Protection Agency  
401 M Street, SW  
MC 6202N  
Washington, DC 20460, USA  
Phone: +1-202 564 91 24  
Fax: +1-202 565 66 74  
E-mail: [schmeltz.rachel@epa.gov](mailto:schmeltz.rachel@epa.gov)

**Earlier Experts:**

Mette Lundgren-Beck, Denmark  
Lene Nielsen, Denmark  
Eva Lembke, Denmark  
Jens Dandanell-Petersen, Denmark  
Piet Heijnen, Netherlands  
Enrique Brazis, Spain  
Julio Peña, Spain  
Carlos Gonzalez, Spain  
Anna Englerd, Sweden  
Johanna Holmberg, Sweden  
Melanie Slade, United Kingdom  
John Millhone, United States  
Bill Noel, United States  
Alison ten Cate, USA

**ANNEX III – LIST OF MEETINGS**

<b>Year</b>	<b>DSM Executive Committee Meetings</b>	<b>Annex III Experts Meetings</b>	<b>Annex III Workshops / Seminars</b>	<b>Annex III Meetings, Seminars with manufacturers and industry and Award Ceremonies</b>
1993	Stockholm, Sweden, 1-2 April  Kerkrade, Netherlands, 28-29 October	Copenhagen, Denmark, 18-19 November		
1994	Madrid, Spain, 24-25 March  Washington D.C., USA, 13-14 October	Delft, Netherlands, 3-4 March  Washington, D.C., USA, 15-17 May <sup>2)</sup>  Helsinki, Finland, 29-30 September <sup>2)</sup>  Paris, France, 1 Dec.	Initial Workshop "Market-Pull Activities and Cooperative Procurement of Innovative Technologies", Paris, France, 29-30 November	Informal seminar at the ACEEE Summer Study, Asilomar, USA, in August
1995	Schaffhausen, Switzerland, 23-24 March  Fukuoka, Japan, 19-20 October <sup>1)</sup>	Zurich, Switzerland, 1-3 March <sup>2)</sup>  Valbonne, France, 12-13 June <sup>2)</sup>  Washington D.C., USA, 14-16 Nov. <sup>2)</sup>		Informal seminar at the ECEEE Summer Study in Mandelieu, France, 8 June
1996	Paris, France, 21-22 March  Sydney, Australia, 31 Oct. – 1 Nov. <sup>1)</sup>	Madrid, Spain, 11-13 March <sup>2)</sup>  Stockholm, Sweden, 24-26 June  Oxford, United Kingdom, 9-10 Dec. <sup>2)</sup>	Seminar "Future-oriented buying for innovative, more efficient products and systems", at The World Bank, Washington D.C, USA, 6 September	Meetings about the coming competitions: - In <i>lighting</i> , Hanover Fair, 23 April. - In <i>copiers</i> , Stockholm, 11 September. - In <i>motors</i> , Lisbon, October.  Seminar at ACEEE Summer Study, Asilomar, USA, Aug.  Informal meeting at the TEEM'96, Monterey, USA, Sept.

<sup>1)</sup> Presentation about Annex III at special meeting in conjunction with Executive Committee Meeting<sup>2)</sup> Workshop/Seminar with national specialists held in connection with Experts Meeting



Year	DSM Executive Committee Meetings	Annex III Experts Meetings	Annex III Workshops / Seminars	Annex III Meetings with manufacturers and industry & Competition Award Ceremonies
1997	Helsinki, Finland, 10-11 April  Oslo, Norway, 10-13 September	Copenhagen, Denmark, 5-7 March  Espoo, Finland, 22-24 September		Meeting and launching of the <i>Drier Competition</i> , at the Domotechnica Fair, Cologne, 19 Febr.  Meeting and launching of the <i>Lighting Competition</i> , at the Hanover Fair, 16 Apr.  Informal seminar at the ECEEE, Czech Republic, June.  Presentation of the <i>Hi-Motors competition</i> at international motor conference in United Kingdom, September.  EC seminar about <i>Consumer Electronics</i> Florence, November  Manufacturer meeting about the coming <i>copier competition</i> , Washington D.C., 2 December
1998	Seoul, Korea, 25-27 March  Chester, United Kingdom, 7-9 October	Utrecht, Netherlands, 19-20 February  Washington D.C., USA, 24-26 June <sup>3)</sup>  Amsterdam, Netherlands, 22 September  Vienna, Austria, November 18-20		"IEA DSM Award of Excellence" ceremony in the <i>Drier Competition</i> , Hague, 27 April  Meeting and launching of the <i>Copier of the Future competition</i> , at conference "Improving Electricity Efficiency in Commercial Buildings", Netherlands, 22 September

<sup>3)</sup> Workshop/Seminar with national specialists held in connection with Experts Meeting

Year	DSM Executive Committee Meetings	Annex III Experts Meetings	Annex III Workshops / Seminars	Annex III Meetings with manufacturers and industry & Competition Award Ceremonies
1999	<p>Copenhagen, Denmark, 16-14 April</p> <p>Amsterdam, Netherlands, 28-29 October</p>	<p>London, United Kingdom, 25-26 Febr.</p> <p>Brussels, Belgium, 30 June-1 July</p> <p>Stockholm, Sweden, 1-2 December</p>	<p>Workshop on Lessons Learned: <i>"Accelerate Innovation and Market Transformation of Energy-Efficient Products"</i>, London, United Kingdom, 24-25 February</p>	<p>"IEA DSM Award of Excellence" ceremony in the <i>Hi-Motors Competition</i>, at the Annex III Workshop on Lessons Learned, London, 24 February.</p> <p>Informal seminar at the ECEEE Summer Study, France, June.</p> <p>"Kick-off" meeting for <i>LED Traffic Signals</i>, Stockholm, 27-28 September.</p> <p>"IEA DSM Award of Excellence" ceremony in the <i>Copier of the Future Competition</i>, at the COMDEX/Fall, Las Vegas, 16 November.</p>